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A Key to the Bats of Western North America North of Mexico

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Heretofore there has been no simple workable key to the species of bats occurring in the western United States. To identify all bats from this region a person would have to use several revisionary papers including those by Miller and Allen (1928), Allen (1916), Hatfield (1936), Engels (1936), and several geographic works (see Hall, 1946; H. W. Grinnell, 1918; Durrant, 1952; and Cockrum, 1952).

The following key will allow the user to identify, to species, bats which are now known from North America north of the Mexican border and west of the 110th Meridian.

- 1a Zygomatic arch incomplete; rostrum more than 15 mm. long;
interfemoral membrane reduced, with caudal vertebrae extending less than $\frac{1}{4}$ the distance to the free border of membrane
Choeronycteris mexicana.
- 1 b Zygomatic arch complete; rostrum less than 15 mm. long; interfemoral membrane not reduced, with caudal vertebrae extending more than $\frac{1}{2}$ the distance to the free border of membrane 2 a
- 2a (1b) Basioccipital region when viewed from the rear conspicuously elevated; braincase floor elevated so that lower rim of foramen magnum above level of rostrum; membranous outgrowths on chin; ears large, rounded
Aello [= Mormoops] megaphylla.
- 2b Basioccipital region when viewed from rear not elevated; foramen magnum not above level of rostrum; no membranous outgrowths on chin; ears not rounded 3a

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- 3a (2b) Snout with nose-leaf 4a
 3b Snout without nose-leaf 5a
 4a (3a) Median incisor smaller than lateral incisor; interfemoral membrane reduced to narrow border along hind-legs; tail not visible; ears small, less than 20 mm. *Leptoncyteris nivalis*.
 4b Median incisor larger than lateral incisor; interfemoral membrane not reduced; tail extends length of membrane; ears large, more than 20 mm. *Macrotus californicus. ornicus*.
 5a (3b) Upper incisors total 2 6a
 513 Upper incisors total 4 13a
 6a (5) Skull more than 30 mm. in greatest length; upper incisors diverging at tips; forearm more than 70 mm. *Eumops perotis*.
 6b Skull less than 25 mm. in greatest length; upper incisors converging at tips; forearm less than 70 mm. 7a
 7a (6b) Four teeth in upper jaw behind canine, none minute 8a
 7b Five teeth in upper jaw behind canine, first tooth minute 9a
 8a (7a) Interfemoral membrane furred; ears less than 20 mm. from crown; fur usually yellow; hair dark basally *Dasypterus ega*.
 8b Interfemoral membrane not furred; ears more than 25 mm. from crown; fur usually pale brown, hair dark at tips, light basally *Antrozous pallidus*.
 9a (7b) Rostrum longer than wide; tail extending beyond free border of interfemoral membrane 10a
 9b Rostrum wider than long; tail not extending beyond free border of interfemoral membrane 12a
 10a (9a) Skull 22-24 mm. in greatest length; forearm more than 52 mm. long *Tadarida molossa* [= *macrotis*].
 10b Skull less than 22 mm. in greatest length; forearm less than 52 mm. long 11a
 11a (10b) Skull less than 18 mm. in greatest length; last phalanx of innermost finger more than 5 mm. long *Tadarida mexicana*.
 11b Skull more than 18 mm. in greatest length; last phalanx of innermost finger less than 5 mm. long *Tadarida femorosacca*.
 12a (9b) Skull more than 17 mm. in greatest length; fur brownish-black covered with white; total length more than 120 mm.; forearm more than 45 mm. long *Lasiurus cinereus*.
 12b Skull less than 14 mm. in greatest length; fur red to reddish-yellow; total length less than 120 mm.; forearm less than 45 mm. long *Lasiurus borealis*.

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- 13a (5b) Interfemoral membrane well furred on dorsal surface;
fur on back blackish, tipped with silver; rostrum with depression on each side between lachrymal region and external nares
Lasionycteris noctivagans.
- 13b Interfemoral membrane not well furred on dorsal surface; fur on back other than blackish, tipped with silver; rostrum without depression on each side between lachrymal region and external nares 14a
- 14a (13b) Teeth totaling 32; color brown; total length more than 90 mm. *Eptesicus fuscus.*
- 14b Teeth totaling 34 to 38; color cinnamon or grayish-brown; gray; or black marked with three large white spots 15a
- 15a (14b) Teeth totaling 34, color black marked with three large white spots, or color gray 16a
- 15b Teeth totaling 34 or 38, color not black marked with large white spots, and color not gray 17a
- 16a (15a) Skull less than 15 mm. in greatest length; tragus short, blunt, and curved forward; fur on dorsal surface grayish; ears, membranes, and face black; total length less than 85 mm.; ears less than 12 mm. *Pipistrellus hesperus.*
- 16b Skull more than 25 mm. in greatest length; tragus not short, blunt, and curved forward; fur on dorsal surface black marked with three large white spots; total length more than 90 mm.; ears longer than 25 mm. *Euderma maculatum.*
- 17a (15b) Teeth totaling 36; muzzle with well developed glandular growths on each side; ears long, always more than 24 mm. from notch and connected at base; feet always longer than 12 mm. *Corynorhinus rafinesquii.*
- 17b Teeth totaling 34 to 38; muzzle without well developed glandular growth on each side; ears always less than 24 mm. from notch and not connected at base; feet less than 12 mm. long 18a
- 18a (17b) Teeth totaling 34, 36, or 38; color cinnamon or grayish-brown; cheek teeth exceptionally large; sagittal and occipital crests well defined 25a
- 18b Teeth totaling 38; color other than cinnamon or grayish-brown; cheek teeth not exceptionally large; sagittal and occipital crests not well defined 19a

19a (18b) Calcar keeled (see Fig. 1a)

20a

19b Calcar not keeled (see Fig. 1b)

25a

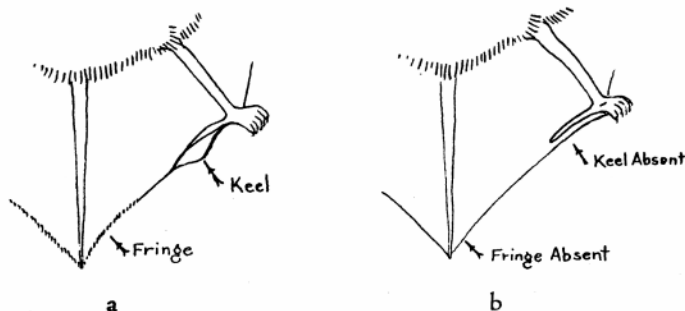


Figure 1

20a (19a) Ears less than 15 mm. from notch

21a

20b Ears more than 16 mm. from notch

23a

21a (20a) Wing furred on underside to level of elbow; forearm usually more than 37 mm.; hind foot never less than 7 mm.; occipital elevation distinct *Myotis volans.*

21b Wing not furred on underside to level of elbow; forearm less than 36 mm.; hind foot usually less than 7 mm.; occipital elevation not distinct 22a

22a (21b) Skull distinctly flattened when viewed laterally; forehead not rising abruptly (see Fig. 2a) *Myotis subulatus.*

22b Skull not distinctly flattened when viewed laterally; forehead rising abruptly (see Fig. 2b) *Myotis californicus. ornicus.*

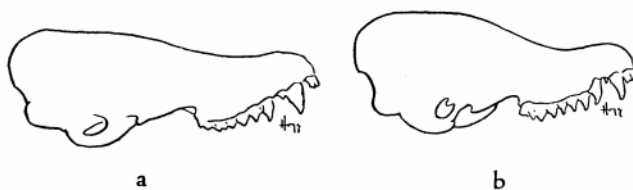


Figure 2

23a (20b) Interfemoral membrane with free border conspicuously fringed; frontal region conspicuously inflated; zygomatic breadth more than 9.8 mm. *Myotis thysanodes.*

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- 23b Interfemoral membrane with free border not conspicuously fringed; frontal region not conspicuously inflated; zygomatic breadth less than 9.8 mm. 24a
- 24a (23b) Ears more than 18 mm. from notch *Myotis evotis*.
- 24b Ears less than 18 mm. from notch *Myotis keenii*.
- 25a (18a and 19b) Sagittal and occipital crests well defined when viewed dorsally; cheek teeth exceptionally large 26a
- 25b Sagittal and occipital crests not well defined when viewed dorsally; cheek teeth not exceptionally large 27a
- 26a (25a) Braincase low and flattened when viewed laterally; rostrum enlarged; fur glossy, usually cinnamon or grayish-brown *Myotis occultus*.
- 26b Braincase high and rounded when viewed laterally; rostrum not enlarged; fur dull sepia or drab *Myotis velifer. er.*
- 27a (25b) Hairs of back usually without conspicuous burnished tips; forehead of skull viewed laterally rises abruptly with rostrum separated from braincase by obvious concavity *Myotis yumanensis*.
- 27b Hairs of back usually with conspicuous burnished tips; forehead of skull viewed laterally has a slight gradual upward slope with rostrum not separated from braincase by obvious concavity *Myotis lucifugus. ugus*.

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